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13. ABSTRACT (*Maximum 200 words*)

The attached report details the objective, methodology, problems, and results for the program "Application of the ARPA Touchstone HPC to Advanced SAR Processing Problems."

14. SUBJECT TERMS
Touchstone, IFSAR, SAR, HPC

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Task Objective

The task objective is to develop the description of a rugged Touchstone processor that will process radar data from the ARPA IFSARE (Interferometric SAR for Elevations) system into terrain height images at rates equal to or better than four times the real-time collection rate. The processor system description shall be complete and will describe the IFP software and hardware needed to provide the production rates stated above. The processor configuration produced shall be based on timing runs made with code somewhat optimized for the rugged Touchstone. Although the effort is centered on the IFSARE system, the results are extendable to interferometric SAR systems.

Technical Problems

There were no technical problems to report during the first quarter.

General Methodology

The existing IFSARE SAR image processing and terrain height extraction software will be ported to the Touchstone computing environment. Once ported, the software will be optimized partially to decrease its execution time; a typical IFSARE data set will be used to measure execution time. Once the software is ported, is optimized partially, and has its throughput quantified, it will be possible to estimate accurately the size of the Touchstone system necessary to perform IFSARE processing. The size of the processor implies the number of individual processing nodes and total system memory. The applicability of Touchstone accelerator nodes to the IFSARE processing problem will also be examined.

Technical Results

There were no technical results to report during the first quarter.

Important Findings and Conclusions

Nothing to note during the first quarter.

Significant Hardware Development

None to report for the first quarter.

Special Comments

None.

Implication for Further Research

Nothing identified during the first quarter.